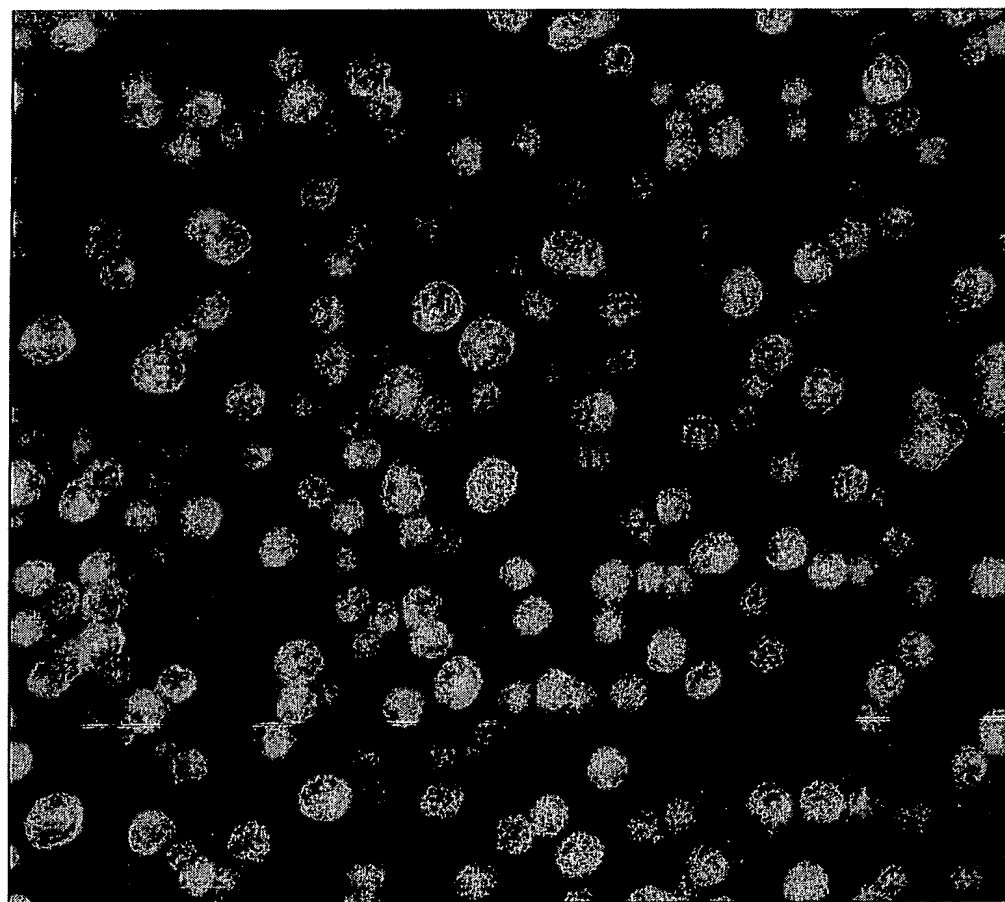


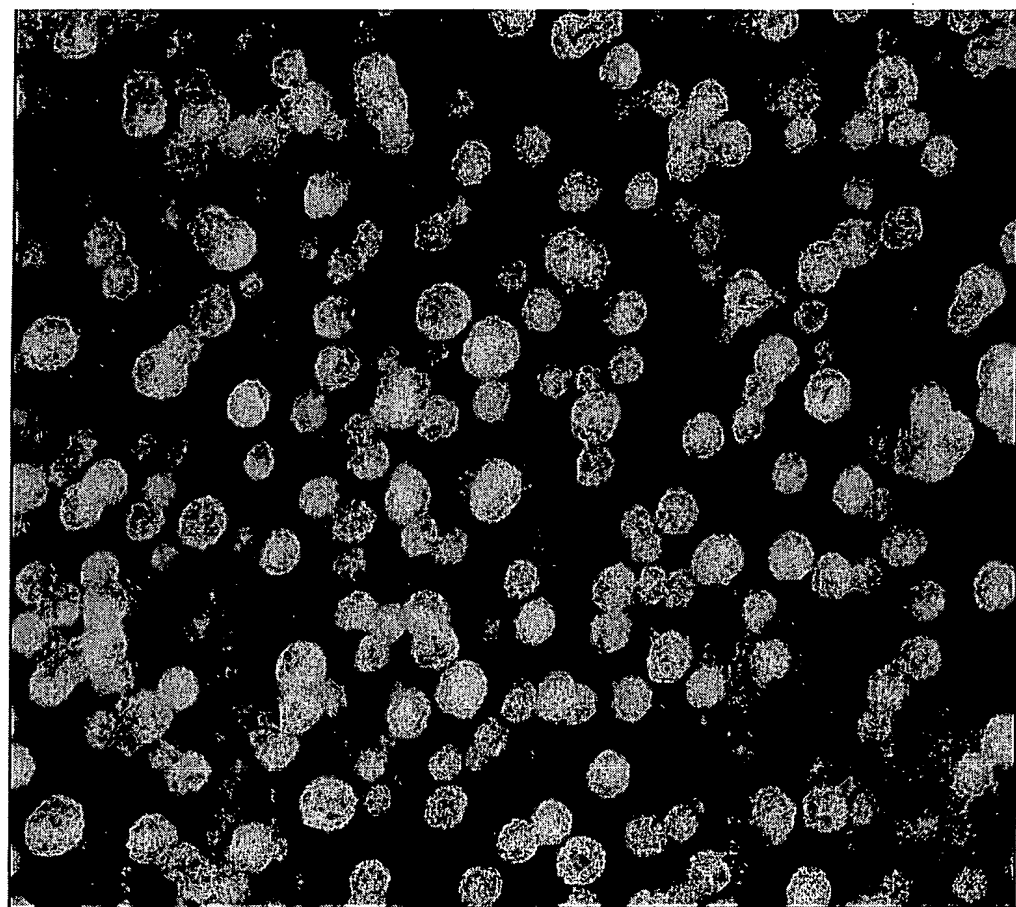
FIG. 1



0 1.50 μm

Data type
Z range
Height
150.0 nm

FIG. 2-1



0

1.50 μm

Data type
Z range

Phase
5.000 de

FIG. 2-2

Catalyst (nanostructure morphology)		H _{cv} (Oe)	H _{cp} (Oe)	H _{cv} - H _{cp} (Oe)
*FePt (vertically aligned nanotubes)		802	543	259
Fe (nanotubes)		750	450	300
Ni (nanowires)		180	129	51
Fe (nanowires)		~520	~420	100
Co (nanoparticles)		~700	~500	~200
FeMn (vertically aligned nanotubes)		~70	~60	~10
Metal-encapsulated carbon nanoparticles	Fe	626	-	
	Co	703	-	
	Ni	295.5	-	
Co-encapsulated graphite-like carbon nanoparticles		370	-	
Fe- trapped carbon-base nanotubes		500	-	

H_{cv} = coercive force at vertical direction to the substrate

H_{cp} = coercive force at parallel direction to the substrate

* the embodiments of present invention

FIG. 3

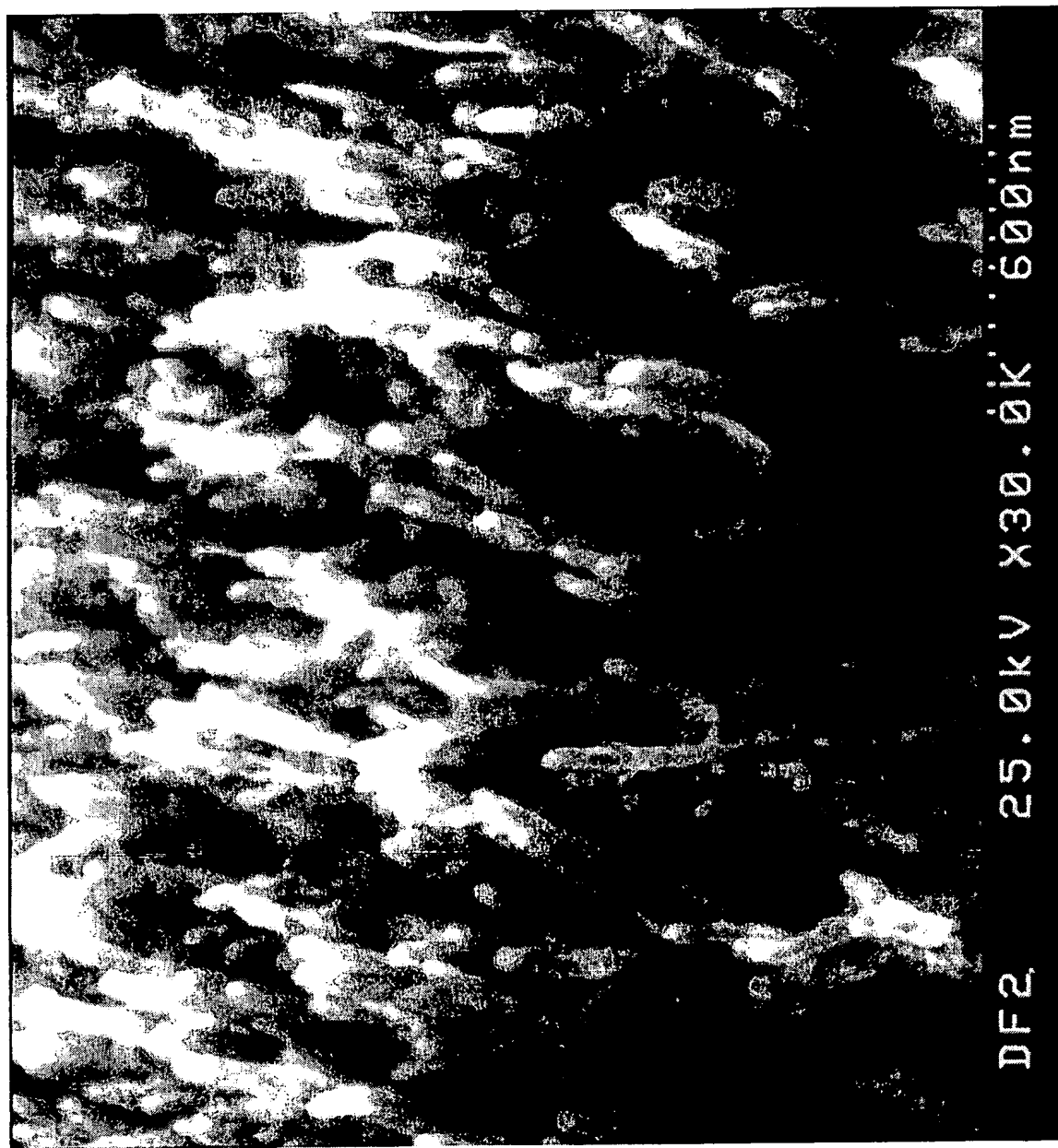


FIG. 4